NATURAL RESOURCES CONSERVATION SERVICE
CONSTRUCTION SPECIFICATION
FOR
WASTE TREATMENT LAGOON

SCOPE

This specification shall consist of the clearing, grubbing, excavation, backfill, concrete, forms, reinforcing steel, and other appurtenances and services required for the construction of a waste treatment lagoon and the disposal of all cleared and excavated materials. Construction operations shall be carried out in such a manner that erosion, air, water, and noise pollution will be minimized and held within legal limits as established by state and federal regulations.

All structures shall be constructed according to plans furnished by the Natural Resources Conservation Service (NRCS) and in accordance with the NRCS's engineering standards for these practices, as well as any local codes or state laws. Any deviation from the approved drawings and specifications must be approved by the engineer prior to construction.

CLEARING AND GRUBBING

All trees, brush, and stumps shall be removed from the site and spoil areas before excavation is performed. All material cleared from the area shall be disposed of by burning or removing from the site and stacking. All burning shall conform to state and local laws and regulations.

EXCAVATION

The completed excavation, berms, and placed banks (spoil disposal) of unsuitable material shall conform to lines, dimensions, grades, and slopes shown on the plans or staked on the site to the degree that skillful operation of the excavating equipment will permit. Runoff from outside drainage areas will be diverted from the waste treatment lagoon.

Borrow material shall be obtained from within the lagoon site as much as practical. The bottom of the lagoon shall be as uniformly flat as possible. Any changes in slope of the lagoon bottom will be approved by the engineer responsible for design. Any excess borrow material will be disposed of by:

1) Raising the height of or widening the embankments or by flattening the slopes;
2) Blending in with the diversion or levee; or
3) Hauling of-site.

DIKE OR LEVEE CONSTRUCTION

Fill Material. The fill material shall be free of all sod, roots, frozen soil, stones over 6 inches in diameter, and other objectionable material. The placing and spreading of the fill material shall be started at the lowest point of the foundation (cut off trench) and the fill shall be brought up in approximately horizontal layers not exceeding 8 inches in uncompacted thickness. Special attention will be given to compaction in the cutoff trench where it joins the abutment slopes.

These layers shall be of approximately uniform elevation and shall extend over the entire area of the fill. Each layer shall be thoroughly compacted by at least two complete passes of the construction equipment over the entire surface area of each layer after the layer has been spread to lift thickness. Special compaction equipment shall be used when the required compaction cannot be obtained by routing of the construction equipment.

The distribution and gradation of materials throughout the fill shall be such that there will be no lenses, pockets, streaks, or layers of material differing substantially in texture and gradation from the surrounding material. Where it is necessary to use material of varying texture and gradation, the more impervious material shall be placed in the upstream and center portions of the fill.

Moisture Control. The moisture content of the fill material shall be such that the specified compaction can be obtained with the equipment used. The moisture content of the fill shall be maintained within a range to:

1. prevent the bulking or dilatence of the material under the action of the hauling or compaction equipment.
2. prevent adherence of the fill material to the equipment.
3. ensure the crushing and blending of the soil clods and aggregation into a homogeneous mass.

4. contain adequate moisture so that a sample can be hand molded.

The completed fill shall conform as nearly to the lines and grades, top width and side slopes shown on the plans as skillful operation of the construction equipment will permit.

INLET AND OUTLET STRUCTURES

Inlet and outlet pipes, flumes, and troughs shall be placed to the lines and grades shown on the plans.

Ramp Installation. When used, an inlet ramp shall be constructed to the dimensions, lines, and grades shown on the plans or as otherwise specified.

Materials. All component parts of the inlet and outlet pipes and supports, ramps, fences, and other materials shall be specified on the plans and shall be installed in a workmanlike manner. Concrete for flumes or other concrete structures associated with the lagoon shall be as specified below.

Concrete. The work shall consist of furnishing, forming, placing, finishing, and curing Portland cement concrete as required in the construction of the work.

When concrete is used for footings under risers, anti-seep collars, and bedding for reinforced concrete pipe barrels, the mixture shall be not less than five bags per cubic yard. The consistency of the concrete shall be such as to allow the concrete to be worked into place without segregation or excessive laitance. Water content shall not exceed 6.0 gallons per sack. Concrete will be thoroughly rodded or vibrated to remove voids and consolidate the concrete.

Concrete shall not be placed when the atmospheric temperature may be expected to fall below 40^0 F at the time concrete is delivered and placed at the work site.

All exposed surfaces of concrete shall be protected from the direct rays of the sun for at least 7 days. All concrete shall be cured by keeping it continuously moist for at least 7 days after placement. This moist curing can be accomplished by spraying with two coats of curing compound when other concrete will not be bonded to the treated surface.

VEGETATION

Vegetative treatment shall be established as specified or as shown on the plans. Vegetation shall be applied as critical area planting and will include seedbed preparation, seeding, liming, fertilizing, and mulching. The interior slope of the lagoon shall be either vegetated the same as the other areas or mulched at a rate of 2 tons/acre to prevent erosion prior to filling of the lagoon.

FENCING

The lagoon shall be fenced when all construction work is completed. Permanent fencing shall be installed as specified in the plan, with safety as the objective. A “WARNING” sign shall be placed on each straight section of fencing, not to exceed a spacing of 300 feet, to alert the public to the hazards of the lagoon.